

**MWH**

MONTGOMERY WATSON HARZA

September 24, 2001

US EPA RECORDS CENTER REGION 5



466192

Mr. Kevin Adler
Remedial Project Manager
U.S. Environmental Protection Agency
Region V, SR-6J
77 West Jackson Boulevard
Chicago, IL 60604-3590

Re: Groundwater Treatment System
Quarterly Monitoring Report – First Quarter 2001
ACS NPL Site

Dear Mr. Adler:

Please find enclosed two copies of the Groundwater Treatment System, Quarterly Monitoring Report, First Quarter 2001 for the American Chemical Service NPL Site in Griffith, Indiana. This report is submitted in accordance with the PGCS Performance Standard Verification Plan, April 1997.

We are also sending three copies of this report to IDEM and one copy of this report to Black & Veatch. If you need additional copies of this report please let me know and we can forward them to you, or whomever you specify.

Sincerely,

MONTGOMERY WATSON HARZA

Peter J. Vagt, Ph.D., CPG
Project Manager

cc: Sean Grady, IDEM (3 copies)
Larry Campbell, B&V (1 copy)
ACS Technical Committee (1 copy to each member)

TMK/emp/RA
J:\209\0601 ACS\0116 GWTP\6010116a039.doc
2090601.0116

**GROUNDWATER TREATMENT SYSTEM
QUARTERLY MONITORING REPORT
FIRST QUARTER 2001**

**AMERICAN CHEMICAL SERVICE NPL SITE
GRIFFITH, INDIANA**

Montgomery Watson Harza File No. 2090601

Prepared For:

**American Chemical Service NPL Site RD/RA Executive Committee
Griffith, Indiana**

Prepared By:

**Montgomery Watson Harza
27755 Diehl Road, Suite 300
Warrenville, Illinois 60555**

September 2001



MWH

MONTGOMERY WATSON HARZA

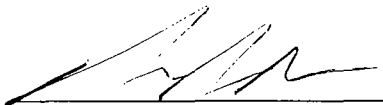
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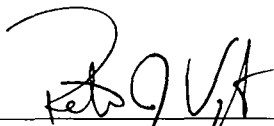
Prepared by:



Robert A. Adams, P.E.
Senior Engineer

9/24/01
Date

Approved by:



Peter Vagt, Ph.D., CPG
Project Manager

9/24/01
Date

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APPENDICES

Appendix A	Effluent Analytical Data:
	<ul style="list-style-type: none">• January 8, 2001 Compliance Sample – Laboratory Results• February 19, 2001 Compliance Sample – Laboratory Results• March 5, 2001 Compliance Sample – Laboratory Results

1.0 INTRODUCTION

Montgomery Watson Harza, on behalf of the ACS RD/RA Executive Committee, started up the on-site groundwater treatment system at the American Chemical Service NPL Site (ACS Site) in Griffith, Indiana on March 13, 1997. The groundwater treatment plant (GWTP) system was designed to treat groundwater from the Perimeter Groundwater Containment System (PGCS) and certain volumes of water from the Barrier Wall Extraction System (BWES). The original treatment consisted of a phase-separator for oil and free product removal, equalization tanks, a UV-oxidation unit for destruction of organic constituents, and an air stripper to remove methylene chloride and other organics. The treatment also includes a chemical precipitation and clarification unit to remove metals, a sand filter to remove suspended solids, and activated carbon vessels for final polishing of the treated groundwater.

An activated sludge treatment process was added to the process to reduce the volatile and semivolatile organic compounds (VOCs and SVOCs) in the collected groundwater. The activated sludge treatment process also reduces the amount of activated carbon required in the treatment process. An aerated equalization tank was also added to the GWTP to remove VOCs from the collected groundwater, oxidize metals to increase metals removal efficiency in the chemical precipitation unit, and equalize groundwater flow through the GWTP. The activated sludge system and aeration tank have been fully integrated into the process, along with the other upgrade components. Startup and optimization of the catalytic oxidizer/scrubber air treatment unit was conducted during the first quarter of 2001.

The treated effluent from the treatment system is discharged to the nearby wetlands, west of the treatment system, in accordance with Agency approvals. This Groundwater Treatment System report summarizes effluent analytical data and water level gauging data collected from January 2001 through March 2001.

2.0 COMPLIANCE MONITORING

2.1 INTRODUCTION

Effluent samples were periodically collected from the treatment system to demonstrate compliance with the discharge limits (Table 2.1) established by Indiana Department of Environmental Management (IDEM) and United States Environmental Protection Agency (U.S. EPA). The approved Performance Standard Verification Plan (PSVP) requires quarterly effluent sampling for biological oxygen demand (BOD), total suspended solids (TSS), SVOCs, metals, and polychlorinated biphenyls (PCBs) in the system, and monthly effluent sampling for VOCs, as shown in the table below. To be conservative, the effluent sampling is being conducted on a monthly basis for all analytes. The samples will continue to be collected on a monthly basis until the treatment system is operating in a relatively steady state after completion and optimization of the groundwater treatment plant upgrades.

Sampling and analyses were performed in accordance with the Agency-approved PSVP Quality Assurance Project Plan (QAPP) prepared by Montgomery Watson Harza for the ACS RD/RA Executive Committee in April 1997. Quality control measures were also instituted in accordance with the PSVP and QAPP. The following paragraphs present details on sampling and analyses, and also summarize the analytical data for the treatment system effluent.

Sampling Frequency Schedule – Groundwater Treatment System

Analytes	Cumulative Time From Startup*	Frequency
Flowrate and pH	–	Continuous
BOD, TSS, SVOCs and Metals	181 days onward	Once per quarter
VOCs	31 days onward	Once per month
PCBs	181 days onward	Once per quarter
PCBs in Sediment (one location)	–	Once per year

*Note: System startup occurred March 13, 1997

2.2 SAMPLING AND ANALYSES

Effluent samples were collected each month during the first quarter 2001. Samples were collected on the following dates for this reporting period:

- January 8, 2001
- February 19, 2001
- March 5, 2001

Effluent samples were collected directly from a sample tap on the effluent line of the treatment system. The samples were placed in contaminant-free containers, as specified in the U.S. EPA Specifications and Guidance for Obtaining Contaminant-Free Sample Containers (U.S. EPA, 1992). Appropriate sample containers and preservatives, as specified in the QAPP, were used to collect and preserve the samples. Following sample collection, the sample containers were refrigerated at or below 4° C in coolers. Chain-of-Custody forms were prepared to track the transfer of samples from the treatment system to the laboratories. In accordance with the approved QAPP, the effluent water samples were analyzed by the following analytical methods for the following parameters:

<u>Parameter</u>	<u>Analytical Method</u>
VOCs	SW-846 8260B
SVOCs	SW-846 8270C
Pentachlorophenol	SW-846 8270C and SIM
Pesticides/PCBs	EPA 608
Metals (Excluding Mercury)	SW-846 6010
General Water Quality Parameters (TSS and BOD-5)	EPA 160.2 and 405.1
Mercury	SW-846 7470
pH	EPA 150.1

2.3 ANALYTICAL RESULTS

The effluent monitoring data, summarized in Table 2.2, verifies that the system effluent was consistently compliant with the discharge limits presented in Table 2.1 with one exception. The effluent sample collected on February 19, 2001 contained total suspended solids (TSS) at a concentration higher than the discharge limit. The result was 400 mg/L; the effluent limit is 30 mg/L. This was the first TSS exceedence since operation of the Groundwater Treatment Plant began. Review of the operating data from the period prior to the exceedence did not result in the determination of a likely cause of the exceedence. The effluent was resampled on March 5, 2001 and TSS was analyzed on a rush turn-around time. TSS was not detected in the resample, confirming that the February 19, 2001 sampling result was most likely an anomaly. The analytical data sheets for all three compliance samples are provided in Appendix A.

In response to the February 2001 TSS exceedence, we are monitoring the TSS removal efficiencies of the Lamella Clarifier and Activated Sludge Plant. As part of the GWTP upgrades, Montgomery Watson Harza installed a turbidity meter to monitor the Activated Sludge Plant effluent at the end of February 2001. The turbidity meter is located near the end of the treatment train, just prior to the sand filters and granular activated carbon (GAC) filters. The purpose of the sand filters and GAC filters is to remove TSS and other residual contaminants. As a safeguard, if elevated TSS levels are measured by the turbidity meter, the Activated Sludge Plant will automatically recycle the effluent until TSS levels have

dropped below an acceptable limit. The turbidity meter and recycling valving was not installed until after the date of the TSS exceedence.

Compuchem Laboratory of Cary, North Carolina analyzed the data. Laboratory Data Consultants (LDC) of Carlsbad, California performed third party data validation in accordance with U.S. EPA National Functional Guidelines for Organic Data Review. Validation qualifiers are listed in Table 2.2 and are written in the margin of the analytical data sheets provided in Appendix A. The "non-detect" results for February and March for the analyte 2-butanone have been flagged "R" by LDC for "rejected" due to low surrogate recovery. The "non-detect" results for acetone for the month of February and 4-methyl-2-pentanone for the month of March has been similarly flagged. This means that these reported results are biased low for 2-butanone, acetone, and 4-methyl-2-pentanone. A review of the results for the above analytes over the past seven quarters indicates that there have previously been no exceedences of these compounds. Consequently, it is likely that these "non-detect" results do indeed accurately characterize the effluent. In order to improve accurate analysis of these analytes, the following three corrective actions were implemented by the laboratory. Compuchem increased the purge lengths and/or temperatures as needed, utilized newly upgraded equipment, and performed quantitation using a stronger ion for 2-butanone. These changes are in accordance with approved SW-846 methodology.

The above changes, however, did not result in improved data quality. As a result, Montgomery Watson Harza will split the April 2001 effluent sample with the project laboratory and a new laboratory and compare the results. That will help us to determine if the project laboratory is in some way deficient. A new QAPP has been submitted and updated protocols should address this issue.

In past years the annual sediment sample analyzing PCBs has been collected during the first quarter. However, the unusual amount of precipitation during the first quarter of this year prevented a sediment sample from being taken during this period. The standing water in the wetland area did not allow an accurate sample to be collected from the GWTP outfall. The sample will be collected later in the year when water levels have dropped.

3.0 TREATMENT SYSTEM PROCESS MODIFICATIONS

During the first quarter of 2001, the GWTP continued to treat groundwater collected by the BWES and PGCS. The work of upgrading the GWTP began in August 1999 and was substantially completed in December 2000. The only treatment system process modification during this monitoring period was the startup and optimization of the catalytic oxidizer/scrubber air treatment unit.

4.0 PGCS AND BWES GAUGING ACTIVITIES

The PGCS trench groundwater extraction wells were operated in "auto" mode continuously throughout the months of January, February, and March 2001. In "auto" mode, each of the PGCS extraction wells are set to turn on or off automatically based on water levels within the holding tank T-2 between the Lamella Clarifier and the Activated Sludge Plant. This mode is used to control the flowrate through the treatment system.

In accordance with the PSVP for the Site, a discussion on the effect of the PGCS and BWES on the water table near the Site is presented in each quarterly monitoring report. This section presents a discussion on the groundwater elevation findings during the months of January through March 2001. Groundwater elevation measurements were collected throughout the Site on March 27, 2001 as part of the quarterly groundwater monitoring program. The groundwater elevations and resulting contours outside the barrier wall are shown on Figure 4.1. However, to keep track of the groundwater table inside the barrier wall, levels were collected from the BWES piezometers (P-3, P-32, P-49 and P-96) on a regular basis, as shown in the table below. The levels from these four piezometers are shown in the table below. The water elevations inside the barrier wall are depicted graphically on Figure 4.2.

As Figure 4.2 shows, water levels inside the barrier wall remained stable from January to the middle of March 2001. During the latter part of March, however, water levels decreased due to increased pumping from the BWES. This is most clearly seen in the decreasing water levels of piezometer P-96, located very near extraction well EW-11 in the Off-Site Area.

Water Table Elevation				
Date	P-3	P-32	P-49	P-96
5-Jan-01	634.27	634.12	634.28	634.49
25-Jan-01	634.37	634.32	634.28	634.29
9-Mar-01	635.07	635.82	635.48	634.89
16-Mar-01	635.37	636.72	635.78	635.39
23-Mar-01	635.17	636.12	634.48	628.39
30-Mar-01	634.77	635.52	633.18	625.89

The barrier wall was constructed to isolate a contaminated zone under the Site, and the BWES was installed to collect the impacted water within the barrier wall. A series of 16 piezometers were installed in eight pairs, one piezometer of each pair on either side of the barrier wall at each of the BWES trench locations. This allows measurement and tracking of water levels in order to ensure that the barrier wall is serving its designed function.

Groundwater elevations inside and outside the barrier wall were monitored on March 27, 2001. Figure 4.3 illustrates these groundwater elevations. Fluctuations in the gradient across the barrier wall occur due to seasonal groundwater conditions, pumping rates from

the BWES, and infiltration through the Site groundwater. However, the groundwater elevations measured in the piezometers indicated that the elevations inside the barrier wall were all 0.63 feet to 2.79 feet higher than the elevations outside the barrier wall, except at piezometers P95 and P96, where the water level was 5.22 feet higher outside the wall due to local dewatering at extraction well, EW-11. This data demonstrates that the barrier wall is successfully performing the intended function of isolating and containing the groundwater from the known source areas of the Site inside the barrier wall. If the wall were not functioning properly, the water levels inside and outside the wall would be equal or nearly equal. Water levels from the piezometers on March 27, 2001 are presented below:

Piezometer	Location ⁽¹⁾	Water Level	Difference ⁽²⁾
P-93 ³	Outside	NM	NA
P-49 ³	Inside	633.52	
P-95	Outside	632.27	-5.22 ⁴
P-96	Inside	627.05	
P-97	Outside	632.44	2.79
P-98	Inside	635.23	
P-99	Outside	633.75	1.65
P-100	Inside	635.48	
P-101	Outside	633.86	1.92
P-102	Inside	635.78	
P-103	Outside	633.89	1.57
P-104	Inside	635.46	
P-105	Outside	634.85	0.63
P-106	Inside	635.48	
P-107	Outside	633.70	1.54
P-108	Inside	635.24	

Notes:

1. Location indicates inside or outside the barrier wall.
 2. A positive value indicates that the water level is higher within the barrier wall. A negative value would indicate that the water level is lower within the barrier wall.
 3. Piezometer P-94 has been destroyed. Therefore the groundwater level from piezometer P-49 was used to calculate the hydraulic gradient. Piezometer P-93 could not be located during this monitoring round, but it is believed to still exist.
 4. At this location, the water level is lower inside the barrier wall due to local dewatering from extraction well EW-11.
- NA Value could not be calculated from single measurement.
 NM Well not measured.

In general, water levels inside the barrier wall are a few feet higher than the water levels outside the barrier wall. The single exception is near piezometers P-95 and P-96, as mentioned above, where extraction well EW-11 has been used to locally dewater the area. It is not the intent to continuously operate with the higher groundwater levels inside the barrier wall. The groundwater levels within the barrier wall during this monitoring period were balanced to maintain a safe level that would not overflow the barrier wall. At the same time, these groundwater levels minimize the amount of groundwater within the barrier wall that requires collection and treatment in the Groundwater Treatment System,

thus avoiding excessive granular activated carbon (GAC) usage. Upon optimization of the groundwater treatment plant and BWES upgrades, the groundwater pumping rate of the BWES will be increased to lower the water table inside the barrier wall for operation of the in-situ soil vapor extraction systems to be installed in accordance with the approved Final Remedy.

Beside the eight pairs of piezometers installed specifically to monitor water level differences across the barrier wall, there are several other previously existing monitoring well and piezometers in the vicinity of the barrier wall. These are shown on Figure 4.3.

TMK/SAE/RAA/PJV/emp
J:\209\0601 ACS\0116 GWTP\6010116a038.doc
2090603.0301



Table 2.1
Groundwater Treatment System Effluent Discharge Limits
American Chemical Service NPL Site
Griffith, Indiana

Groundwater Quality Parameter	Effluent Standard (Limit)
General Water Quality Parameters	
PH	6 - 9 S.U.
BOD-5	30 mg/L
TSS	30 mg/L
Inorganics	
Arsenic	50 µg/L
Beryllium	NE
Cadmium	4.1 µg/L
Manganese	NE
Mercury	0.02 µg/L (w/DL = 0.64)
Selenium	8.2 µg/L
Thallium	NE
Zinc	411 µg/L
Volatile Organics	
Acetone	6,800 µg/L
Benzene	5 µg/L
2-Butanone	210 µg/L
Chloromethane	NE
1,4 – Dichlorobenzene	NE
1,1 – Dichloroethane	NE
1,2 – Dichloroethene – cis	70 µg/L
Ethylbenzene	34 µg/L
Methylene chloride	5 µg/L
Tetrachloroethene	5 µg/L
Trichloroethene	5 µg/L
Vinyl chloride	2 µg/L
4 – Methyl - 2 – pentanone	15 µg/L
Semi-Volatile Organics	
bis(2 – Chloroethyl) ether	9.6 µg/L
bis(2 – Ethylhexyl) phthalate	6 µg/L
Isophorone	50 µg/L
4 – Methylphenol	34 µg/L
Pentachlorophenol	1 µg/L
PCBs	
PCBs	0.00056 µg/L (w/DL = 0.1 to 0.9)

Notes:

NE = No effluent limit established.

DL = Detection limit

Table 2.2
Summary of Effluent Analytical Results - First Quarter 2001
Groundwater Treatment System
American Chemical Service NPL Site
Griffith, Indiana

Event	Month 44	Month 45	Month 46	Effluent Limits	Lab Reporting Limits
Date	1/8/01	2/19/01	3/5/01		
pH	7.52 /J	8.29 /J	8.24	6-9	none
TSS	ND	400	ND	30	10
BOD	ND	ND	ND	30	2
Arsenic	ND	ND	ND	50	3.4
Beryllium	ND	ND	0.19 B/	NE	0.2
Cadmium	ND	ND	ND	4.1	0.3
Manganese	184	235	95.5	NE	10
Mercury	ND	ND	ND	0.02 (w/DL = 0.64)	0.1
Selenium	ND	ND	ND	8.2	4.3
Thallium	ND	ND	ND	NE	5.7
Zinc	ND	ND	ND	411	1.2
Benzene	ND	ND	ND	5	0.5
Acetone	3 /J	ND /R	6 B/UJ	6,800	3
2-Butanone	2 J/J	ND /R	ND /R	210	3
Chloromethane	ND /UJ	ND	ND /UJ	NE	0.5
1,4-Dichlorobenzene	0.3 J	ND	ND	NE	0.5
1,1-Dichloroethane	ND	ND	ND	NE	0.5
cis-1,2-Dichloroethene	ND	ND	ND	70	0.5
Ethylbenzene	ND	ND	ND	34	0.5
Methylene chloride	ND	0.4 J/J	0.7 /J	5	0.6
Tetrachloroethene	ND /UJ	ND	ND	5	0.5
Trichloroethene	ND	ND	ND	5	0.5
Vinyl chloride	ND	ND	ND	2	0.5
4-Methyl-2-pentanone	ND	ND	ND /R	15	3
bis (2-Chloroethyl) ether	ND	ND	ND	9.6	9.6
bis(2-Ethylhexyl) - phthalate	ND	3 J/J	ND	6	6
4 - Methylphenol	ND	ND	ND	34	10
Isophorone	ND	ND	ND	50	10
Pentachlorophenol	ND	0.3 J/J	ND	1	1
PCB/Aroclor-1016	ND	ND	ND	0.00056 (w/DL = 0.1 to 0.9)	0.5
PCB/Aroclor-1221	ND	ND	ND	0.00056 (w/DL = 0.1 to 0.9)	1.0*
PCB/Aroclor-1232	ND	ND	ND	0.00056 (w/DL = 0.1 to 0.9)	0.5
PCB/Aroclor-1242	ND	ND	ND /UJ	0.00056 (w/DL = 0.1 to 0.9)	0.5
PCB/Aroclor-1248	ND	ND	ND /UJ	0.00056 (w/DL = 0.1 to 0.9)	0.5
PCB/Aroclor-1254	ND	ND	ND /UJ	0.00056 (w/DL = 0.1 to 0.9)	0.5
PCB/Aroclor-1260	ND	ND	ND /UJ	0.00056 (w/DL = 0.1 to 0.9)	0.5

Notes:

Shaded cells indicate discharge exceedances

pH data is expressed in S.U.

TSS and BOD₅ data is expressed in mg/L

Metals, VOC, SVOC and PCB data is expressed in ug/L

ND = Not detected

NE = No effluent limit established.

NA = Sample not analyzed for this compound

* = Approved SW-846 method is incapable of achieving effluent limit.

Suffix Definitions:

_J = Data qualifier added by laboratory

_L = Data qualifier added by data validator

B = Compound is also detected in the blank

E = Compound exceeds the upper level of calibration range of instrument

J = Result is detected below the reporting limit and is an estimated concentration

Q = Sample was analyzed out of the recommended holding time

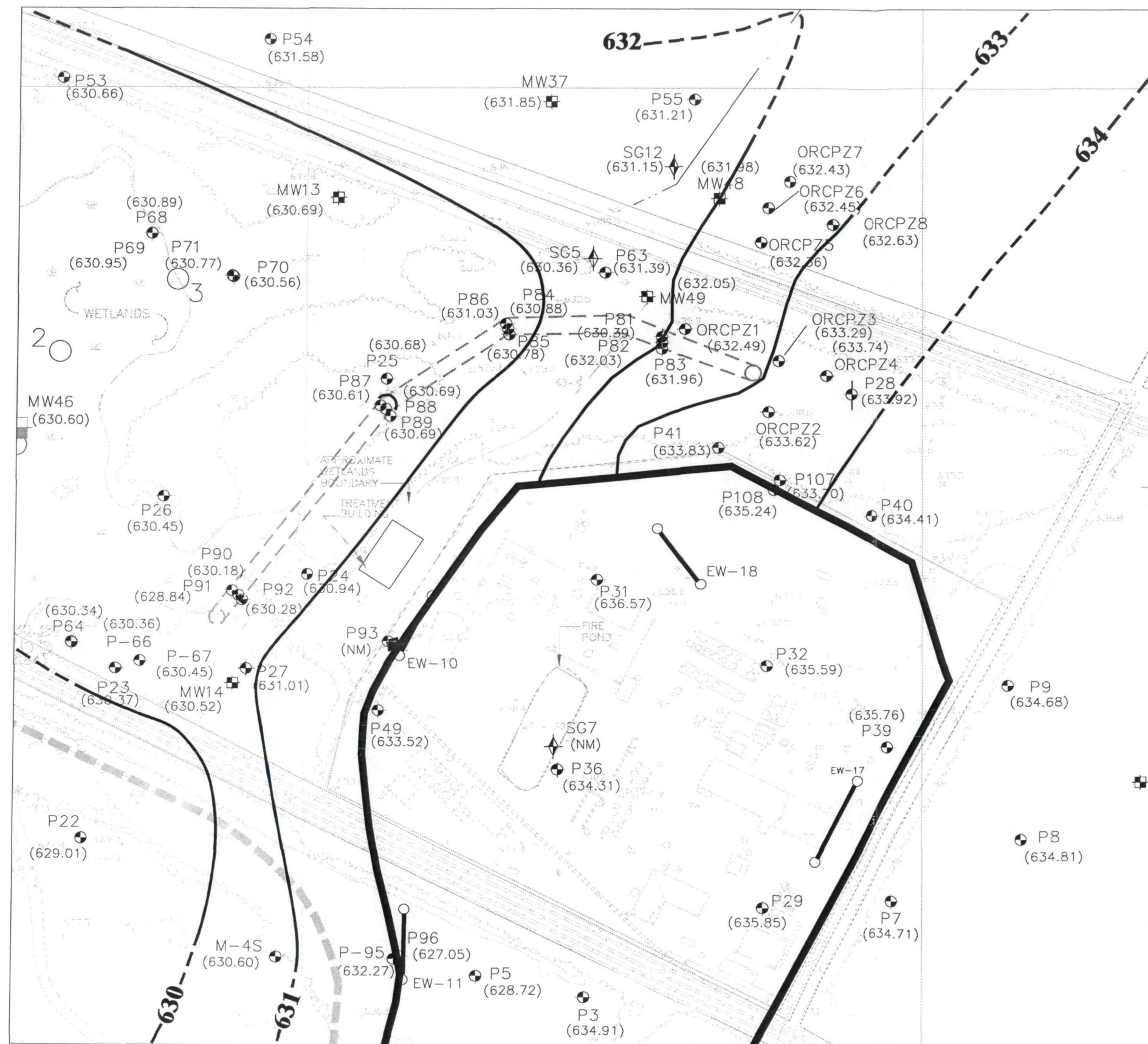
R = Quality control indicates the data is not usable

JB = Analyte is detected in the compliance sample below the reporting limit and is an estimated concentration and the compound is also detected in the method blank resulting in a potential high bias

UB = Analyte is not detected at or above the indicated concentration due to blank contamination

UJ = Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value





LEGEND

- P106 PIEZOMETER LOCATION AND DESIGNATION
- ORCPZ7 ORC PIEZOMETER LOCATION AND DESIGNATION
- MW48 MONITORING WELL LOCATION AND DESIGNATION
- SG12 STAFF GAUGE LOCATION AND DESIGNATION
- (DRY) WELL/STAFF GAUGE WAS DRY DURING MEASURING
- (NM) NOT MEASURED
- (631.56) GROUNDWATER ELEVATION
- BARRIER WALL
- GRIFFITH LANDFILL BOUNDARY
- PERIMETER GROUND WATER CONTAINMENT SYSTEM EXTRACTION TRENCH
- EW-11 BWES EXTRACTION TRENCH LOCATION AND DESIGNATION
- 634 GROUNDWATER ELEVATION CONTOUR BASED ON GROUNDWATER ELEVATION DATA (CONTOUR LINES ARE DASHED WHERE GROUNDWATER ELEVATIONS ARE INFERRED.)

NOTE

1. GROUNDWATER ELEVATIONS WERE MEASURED AT THE SITE ON MARCH 27, 2001

0 200
SCALE IN FEET

SCALE

1"=200'



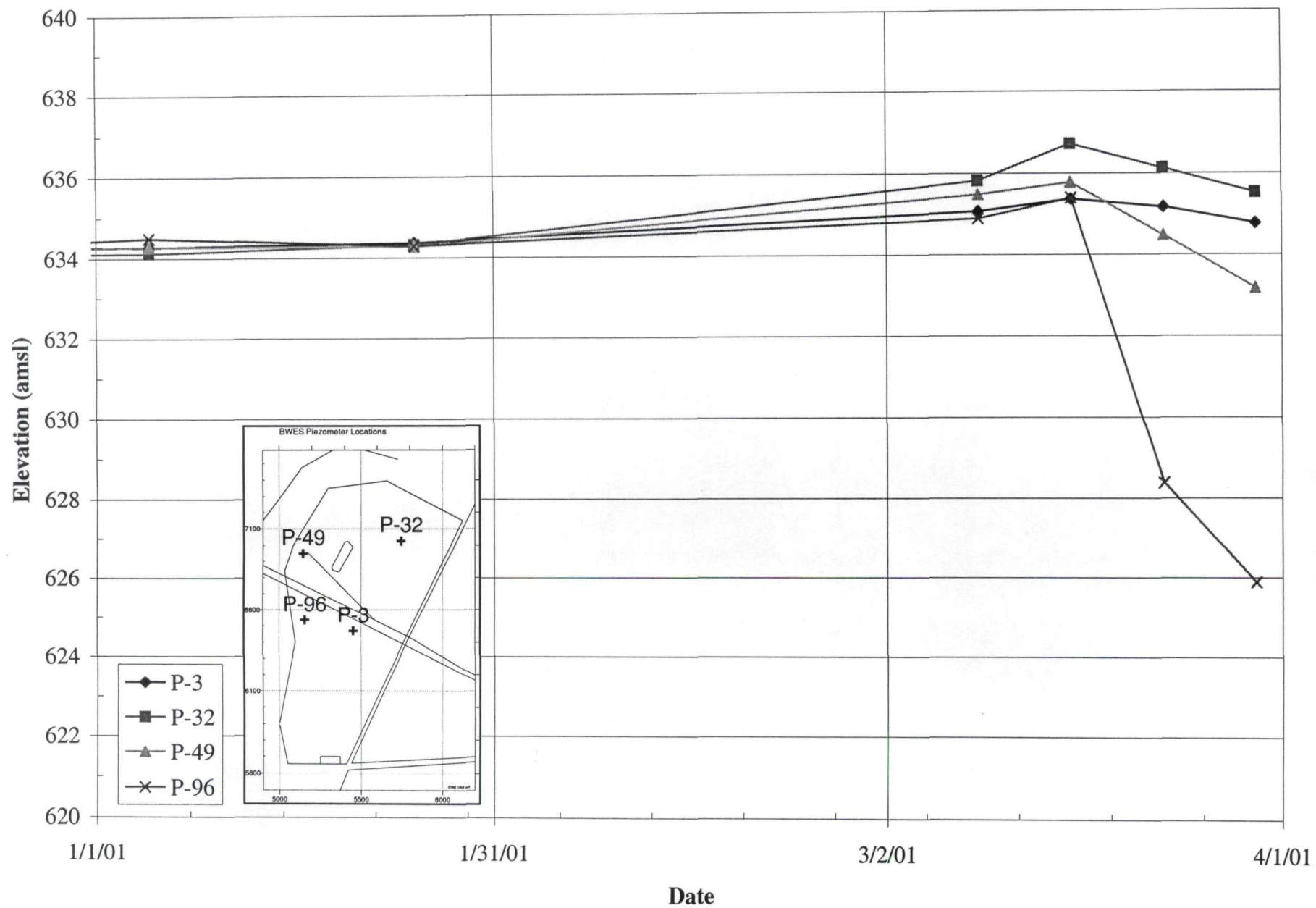
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MONTGOMERY WATSON HARTZ

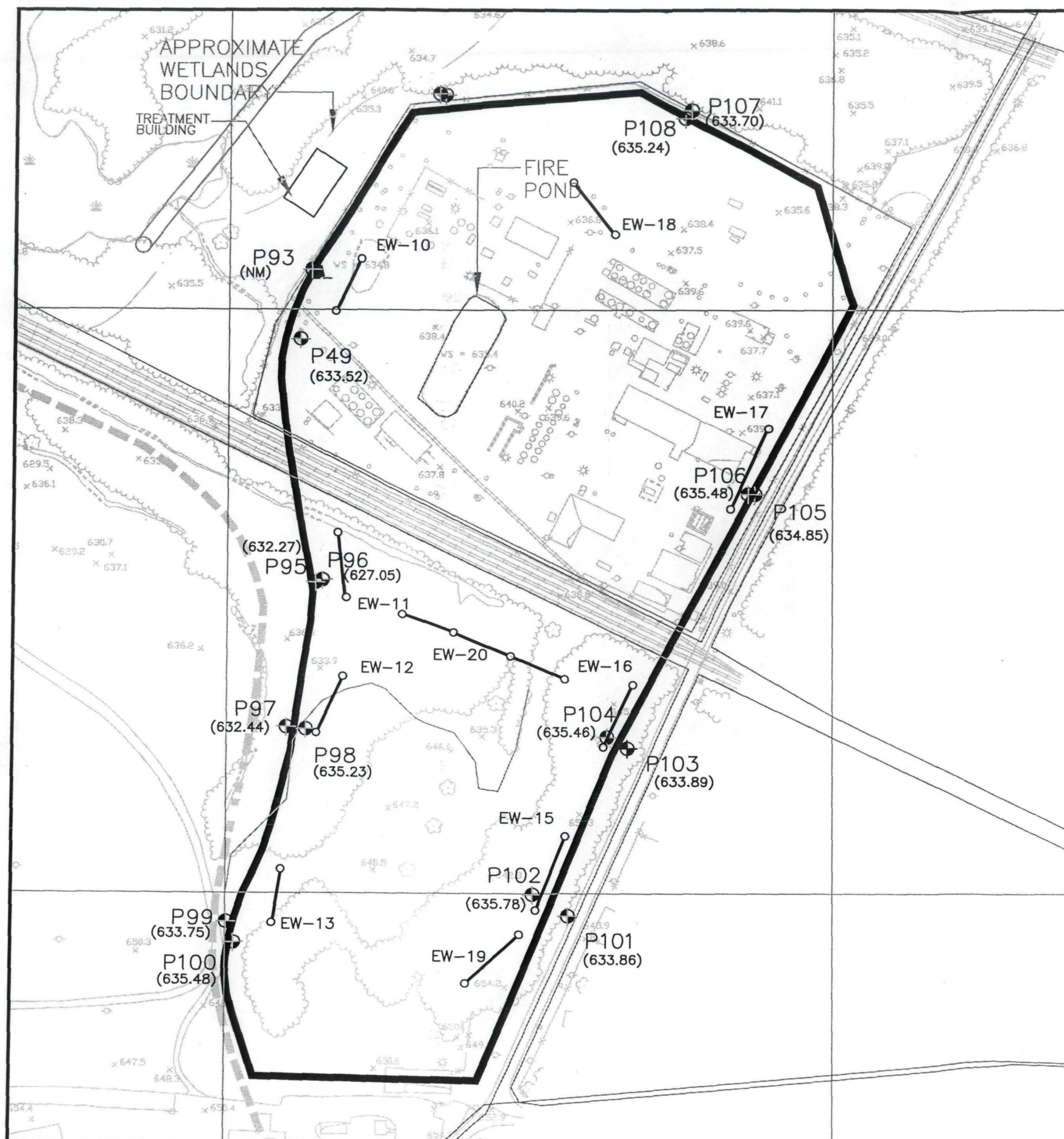
AMERICAN CHEMICAL SERVICES, INC.
GRIFFITH, INDIANA

WATER TABLE ELEVATIONS
NEAR THE PGCS
MARCH 2001








FIGURE

4.1



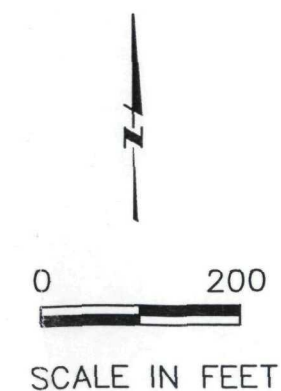


LEGEND

-  P106 PIEZOMETER LOCATION AND DESIGNATION
-  (638.12) GROUNDWATER ELEVATION
-  BARRIER WALL
-  GRIFFITH LANDFILL BOUNDARY
-  PERIMETER GROUND WATER CONTAINMENT SYSTEM EXTRACTION TRENCH
-  EW-11 BWES EXTRACTION TRENCH LOCATION AND DESIGNATION
-  (NM) NOT MEASURED

NOTES

1. GROUNDWATER ELEVATIONS WERE MEASURED THE SITE ON MARCH 27, 2001



SCALE
1"=200'



AMERICAN CHEMICAL SERVICES, INC.
GRIFFITH, INDIANA

WATER TABLE ELEVATIONS
ACROSS THE BARRIER WALL
MARCH 2001

FIGURE
4.3



APPENDIX A
EFFLUENT ANALYTICAL DATA

**January 8, 2001 Compliance Sample
Laboratory Results**

PH ANALYSIS
SUMMARY REPORT

ITEM NO.	SAMPLE IDENTIFIER	COMPUCHEM NUMBER	RESULT (Standard pH units)	REPORTING LIMIT (Standard pH units)
1.	EFFLUENT	QV1024-1	7.52 J	N/A

5/15/01
Tmk

BRL = BELOW REPORTING LIMIT

Reviewed by/ID#: R. George 12405

Date: 1/16/01

TOTAL SUSPENDED SOLIDS ANALYSIS

SUMMARY REPORT

ITEM NO.	SAMPLE IDENTIFIER	COMPUCHEM NUMBER	RESULT (mg/L)	REPORTING LIMIT (mg/L)
1.	EFFLUENT	QV1024-1	BRL	4

pmx 5/15/04

BRL = BELOW REPORTING LIMIT

Reviewed by/ID#: R. J. Jones / 2405 Date: 1/16/01

ENVIRONMENTAL ANALYTICAL SERVICES

FINAL REPORT OF ANALYSES

TEST AMERICA
2700 GATEWAY CENTER
STE. 625
MORRISVILLE, NC 27560-
Attn: CAROL YANDELL

REPORT DATE: 01/16/01

SAMPLE NUMBER- 180578 SAMPLE ID- COMPUCEM EFFLUENT
DATE SAMPLED- 01/08/01
DATE RECEIVED- 01/09/01 SAMPLER- NOT SPECIFIED
TIME RECEIVED- 1315 DELIVERED BY- TEST AMERICA

SAMPLE MATRIX- WW
TIME SAMPLED- 1400
RECEIVED BY- CVB

Page 1 of 1

PROJECT NAME : COMPUCEM EFFLU

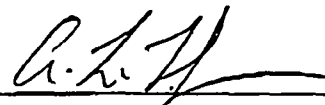
ANALYSIS	METHOD	ANALYSIS DATE	BY	RESULT UNITS	PQL
BIOCHEMICAL OXYGEN DEMAND	EPA 405.1	01/10/01	JAB	<2 mg/L	2

PQL = Practical Quantitation Limit

Results followed by the letter J are estimated concentrations.

NC DENR CERTIFICATIONS: DWQ - 96; PUBLIC WATER SUPPLY - 37724

LABORATORY DIRECTOR



Tmk 5/15/01

SW-846 METALS

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM

Contract: _____

Lab Code: LIBRTY

Case No.: _____

SAS No.: _____

SDG No.: QV1024Matrix (soil/water): WATERLab Sample ID: QV1024-1Level (low/med): LOWDate Received: 01/09/01Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight):

UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	47.9	B		P
7440-36-0	Antimony	2.3	U		P
7440-38-2	Arsenic	3.4	U		P
7440-39-3	Barium	49.6			P
7440-41-7	Beryllium	0.20	U		P
7440-43-9	Cadmium	0.30	U		P
7440-70-2	Calcium	75200			P
7440-47-3	Chromium	0.90	B		P
7440-48-4	Cobalt	0.74	B		P
7440-50-8	Copper	1.2	B		P
7439-89-6	Iron	208			P
7439-92-1	Lead	2.1	U		P
7439-95-4	Magnesium	25400			P
7439-96-5	Manganese	184			P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	3.3	B		P
7440-09-7	Potassium	12700			P
7782-49-2	Selenium	4.3	U		P
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	51200			P
7440-28-0	Thallium	5.7	U		P
7440-62-2	Vanadium	0.70	U		P
7440-66-6	Zinc	1.2	U		P

5/15/01 Tmk

Color Before: COLORLESSClarity Before: CLEAR

Texture: _____

Color After: COLORLESSClarity After: CLEAR

Artifacts: _____

Comments: _____

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM

Contract:

Lab Code: LIBRTY

Case No.:

SAS No.:

SDG No.: QV1024

Matrix: (soil/water) WATER

Lab Sample ID: QV1024-1

Sample wt/vol: 25 (g/ml) ML

Lab File ID: QV1024-1A54

Level: (low/med) LOW

Date Received: 01/09/01

% Moisture: not dec. _____

Date Analyzed: 01/15/01

GC Column: EQUITY624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Q

74-87-3-----	Chloromethane	0.5	U	4J
75-01-4-----	Vinyl Chloride	0.5	U	
74-83-9-----	Bromomethane	0.5	U	4J
75-00-3-----	Chloroethane	0.5	U	
75-35-4-----	1,1-Dichloroethene	0.5	U	
75-15-0-----	Carbon disulfide	0.5	U	
67-64-1-----	Acetone	3		J
75-09-2-----	Methylene Chloride	0.5	U	
156-60-5-----	trans-1,2-Dichloroethene	0.5	U	
75-34-3-----	1,1-Dichloroethane	0.5	U	
156-59-2-----	cis-1,2-Dichloroethene	0.5	U	
78-93-3-----	2-butanone	2	J	J
67-66-3-----	Chloroform	0.5	U	
71-55-6-----	1,1,1-Trichloroethane	0.5	U	
56-23-5-----	Carbon Tetrachloride	0.5	U	
71-43-2-----	Benzene	0.5	U	
107-06-2-----	1,2-Dichloroethane	0.3	J	
79-01-6-----	Trichloroethene	0.5	U	
78-87-5-----	1,2-Dichloropropane	0.5	U	
75-27-4-----	Bromodichloromethane	0.2	J	
10061-01-5-----	cis-1,3-Dichloropropene	0.2	J	
108-10-1-----	4-Methyl-2-pentanone	3	U	
108-88-3-----	Toluene	0.5	U	
10061-02-6-----	trans-1,3-Dichloropropene	0.5	U	4J
79-00-5-----	1,1,2-Trichloroethane	0.4	J	
127-18-4-----	Tetrachloroethene	0.5	U	4J
591-78-6-----	2-hexanone	3	U	
124-48-1-----	Dibromochloromethane	0.2	J	
108-90-7-----	Chlorobenzene	0.5	U	
100-41-4-----	Ethylbenzene	0.5	U	
108-38-3-----	m,p-Xylene	1	U	
95-47-6-----	o-Xylene	0.5	U	
100-42-5-----	Styrene	0.1	J	

FORM I VOA

TMK 5/15/01

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM

Contract:

Lab Code: LIBRTY

Case No.:

SAS No.:

SDG No.: QV1024

Matrix: (soil/water) WATER

Lab Sample ID: QV1024-1

Sample wt/vol: 25 (g/ml) ML

Lab File ID: QV1024-1A54

Level: (low/med) LOW

Date Received: 01/09/01

% Moisture: not dec. _____

Date Analyzed: 01/15/01

GC Column: EQUITY624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Q

75-25-2-----Bromoform	0.3	J
79-34-5-----1,1,2,2-Tetrachloroethane	0.2	J
106-46-7-----1,4-Dichlorobenzene	0.3	J
540-59-0-----1,2-Dichloroethene (total)	0.5	U
1330-20-7-----Xylene (total)	0.5	U

Tmk 5/15/01

FORM I VOA

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM

Contract:

Lab Code: LIBRTY

Case No.:

SAS No.:

SDG No.: QV1024

Matrix: (soil/water) WATER

Lab Sample ID: QV1024-1

Sample wt/vol: 1075 (g/mL) ML

Lab File ID: QV1024-1J2A64

Level: (low/med) LOW

Date Received: 01/09/01

% Moisture: _____ decanted: (Y/N) _____

Date Extracted: 01/09/01

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 01/11/01

Injection Volume: 1.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Q

111-44-4-----Bis(2-chloroethyl) ether	8.9	U
106-44-5-----4-Methylphenol	9.3	U
78-59-1-----Isophorone	9.3	U
117-81-7-----bis(2-ethylhexyl) Phthalate	5.6	U

Tmk 5/15/01

FORM I SV

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM

Contract:

Lab Code: LIBRTY

Case No.:

SAS No.:

SDG No.: QV1024

Matrix: (soil/water) WATER

Lab Sample ID: QV1024-1

Sample wt/vol: 1075 (g/mL) ML

Lab File ID: QV1024-1A70

Level: (low/med) LOW

Date Received: 01/09/01

% Moisture: _____ decanted: (Y/N) _____

Date Extracted: 01/09/01

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 01/11/01

Injection Volume: 1.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Q

87-86-5-----Pentachlorophenol	0.93	U
-------------------------------	------	---

Tmx 5/15/01

FORM I SV

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM

Contract:

Lab Code: LIBRTY

Case No.:

SAS No.:

SDG No.: QV1024

Matrix: (soil/water) WATER

Lab Sample ID: QV1024-1

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: _____

% Moisture: _____ decanted: (Y/N) _____

Date Received: 01/09/01

Extraction: (SepF/Cont/Sonc) SEPF

Date Extracted: 01/10/01

Concentrated Extract Volume: 5000 (uL)

Date Analyzed: 01/10/01

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

pH: _____

Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
---------	----------	--	---

12674-11-2-----Aroclor-1016	0.50	U
11104-28-2-----Aroclor-1221	1.0	U
11141-16-5-----Aroclor-1232	0.50	U
53469-21-9-----Aroclor-1242	0.50	U
12672-29-6-----Aroclor-1248	0.50	U
11097-69-1-----Aroclor-1254	0.50	U
11096-82-5-----Aroclor-1260	0.50	U

Tmk
5/15/01

**February 19, 2001 Compliance Sample
Laboratory Results**

PH IN WATER ANALYSIS

SUMMARY REPORT

ITEM NO.	SAMPLE IDENTIFIER	COMPUCHEM NUMBER	RESULT (Standard pH units)	REPORTING LIMIT (Standard pH units)
1.	EFFLUENT	QX1024-1	8.29 J	N/A

BRL = BELOW REPORTING LIMIT

Reviewed by/ID#: R. J. Jones / 2405 Date: 3/2/01

3/27/01

TOTAL SUSPENDED SOLIDS ANALYSIS

SUMMARY REPORT

ITEM NO.	SAMPLE IDENTIFIER	COMPUCHEM NUMBER	RESULT (mg/L)	REPORTING LIMIT (mg/L)
1.	EFFLUENT	QX1024-1	400	4

BRL = BELOW REPORTING LIMIT

Reviewed by/ID#: R. Deuge 12705 Date: 3/2/01

pr
3/27/01

CHEMICAL & ENVIRONMENTAL TECHNOLOGY, INC.

ENVIRONMENTAL ANALYTICAL SERVICES

0127AL

FINAL REPORT OF ANALYSES

TEST AMERICA
4004 BARRETT DRIVE
SUITE 105
RALEIGH, NC 27609-
Attn: CAROL YANDELL

REPORT DATE: 02/26/01

SAMPLE NUMBER- 181628 SAMPLE ID- EFFLUENT
DATE SAMPLED- 02/19/01
DATE RECEIVED- 02/20/01 SAMPLER- COMPUCHEM
TIME RECEIVED- 1345 DELIVERED BY- JF

SAMPLE MATRIX- WW
TIME SAMPLED- 1400
RECEIVED BY- CAB

Page 1 of 1

PROJECT NAME : 01-0224

ANALYSIS	METHOD	ANALYSIS DATE	BY	RESULT UNITS	PQL
BIOCHEMICAL OXYGEN DEMAND	EPA 405.1	02/21/01	LEB	<2 mg/L	2

PQL = Practical Quantitation Limit

Results followed by the letter J are estimated concentrations.

NC DENR CERTIFICATIONS: DWQ - 96; PUBLIC WATER SUPPLY - 37724

LABORATORY DIRECTOR

R.L.H.

3/27/01

SW-846 METALS

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM

Contract: _____

Lab Code: LIBRTY

Case No.: _____

SAS No.: _____

SDG No.: QX1024Matrix (soil/water): WATERLab Sample ID: QX1024-1Level (low/med): LOWDate Received: 02/20/01% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight):

UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	15.1	U		P
7440-36-0	Antimony	2.5	B		P
7440-38-2	Arsenic	4.2	U		P
7440-39-3	Barium	38.4			P
7440-41-7	Beryllium	0.10	U		P
7440-43-9	Cadmium	0.60	U		P
7440-70-2	Calcium	99600			P
7440-47-3	Chromium	0.57	B		P
7440-48-4	Cobalt	0.70	U		P
7440-50-8	Copper	1.2	B		P
7439-89-6	Iron	18.5	B		P
7439-92-1	Lead	1.7	U		P
7439-95-4	Magnesium	21000			P
7439-96-5	Manganese	235			P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	2.2	B		P
7440-09-7	Potassium	7240			P
7782-49-2	Selenium	4.8	U		P
7440-22-4	Silver	0.50	U		P
7440-23-5	Sodium	50500			P
7440-28-0	Thallium	6.2	U		P
7440-62-2	Vanadium	0.92	B		P
7440-66-6	Zinc	1.1	U		P

Color Before: COLORLESSClarity Before: CLEAR

Texture: _____

Color After: COLORLESSClarity After: CLEAR

Artifacts: _____

Comments: _____

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM

Contract:

Lab Code: LIBRTY

Case No.:

SAS No.:

SDG No.: QX1024

Matrix: (soil/water) WATER

Lab Sample ID: QX1024-1

Sample wt/vol: 25 (g/ml) ML

Lab File ID: QX1024-1A51

Level: (low/med) LOW

Date Received: 02/20/01

% Moisture: not dec. _____

Date Analyzed: 03/05/01

GC Column: EQUITY624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L Q

74-87-3	-----Chloromethane	0.5	U	
75-01-4	-----Vinyl Chloride	0.5	U	
74-83-9	-----Bromomethane	0.5	U	W
75-00-3	-----Chloroethane	0.5	U	
75-35-4	-----1,1-Dichloroethene	0.5	U	
75-15-0	-----Carbon disulfide	0.2	J	
67-64-1	-----Acetone	3	U	R
75-09-2	-----Methylene Chloride	0.4	J	J
156-60-5	-----trans-1,2-Dichloroethene	0.5	U	
75-34-3	-----1,1-Dichloroethane	0.5	U	
156-59-2	-----cis-1,2-Dichloroethene	0.5	U	
78-93-3	-----2-butanone	3	U	R
67-66-3	-----Chloroform	0.5	U	
71-55-6	-----1,1,1-Trichloroethane	0.5	U	
56-23-5	-----Carbon Tetrachloride	0.5	U	
71-43-2	-----Benzene	0.5	U	
107-06-2	-----1,2-Dichloroethane	0.5	U	
79-01-6	-----Trichloroethene	0.5	U	
78-87-5	-----1,2-Dichloropropane	0.5	U	
75-27-4	-----Bromodichloromethane	0.5	U	
10061-01-5	-----cis-1,3-Dichloropropene	0.5	U	
108-10-1	-----4-Methyl-2-pentanone	3	U	
108-88-3	-----Toluene	0.5	U	
10061-02-6	-----trans-1,3-Dichloropropene	0.5	U	
79-00-5	-----1,1,2-Trichloroethane	0.5	U	
127-18-4	-----Tetrachloroethene	0.5	U	
591-78-6	-----2-hexanone	3	U	R
124-48-1	-----Dibromochloromethane	0.5	U	
108-90-7	-----Chlorobenzene	0.5	U	
100-41-4	-----Ethylbenzene	0.5	U	
108-38-3	-----m,p-Xylene	1	U	
95-47-6	-----o-Xylene	0.5	U	
100-42-5	-----Styrene	0.5	U	

FORM I VOA

3/5/01

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFELUENT

Lab Name: COMPUCHEM

Contract:

Lab Code: LIBRTY

Case No.:

SAS No.:

SDG No.: QX1024

Matrix: (soil/water) WATER

Lab Sample ID: QX1024-1

Sample wt/vol: 25 (g/ml) ML

Lab File ID: QX1024-1A51

Level: (low/med) LOW

Date Received: 02/20/01

% Moisture: not dec. _____

Date Analyzed: 03/05/01

GC Column: EQUITY624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Q

75-25-2-----Bromoform	0.5	U
79-34-5-----1,1,2,2-Tetrachloroethane	0.5	U
106-46-7-----1,4-Dichlorobenzene	0.5	U
540-59-0-----1,2-Dichloroethene (total)	0.5	U
1330-20-7-----Xylene (total)	0.5	U

FORM I VOA

95
3/27/01

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM

Contract:

Lab Code: LIBRTY

Case No.:

SAS No.:

SDG No.: QX1024

Matrix: (soil/water) WATER

Lab Sample ID: QX1024-1

Sample wt/vol: 1025 (g/mL) ML

Lab File ID: QX1024-1JA64

Level: (low/med) LOW

Date Received: 02/20/01

% Moisture: _____ decanted: (Y/N) _____

Date Extracted: 02/22/01

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 02/23/01

Injection Volume: 1.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Q

111-44-4-----Bis(2-chloroethyl) ether_____	9.4	U	
106-44-5-----4-Methylphenol_____	9.8	U	
78-59-1-----Isophorone_____	9.8	U	
117-81-7-----bis(2-ethylhexyl) Phthalate_____	3	J	J

FORM I SV

8270C

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM

Contract:

Lab Code: LIBRTY

Case No.:

SAS No.:

SDG No.: QX1024

Matrix: (soil/water) WATER

Lab Sample ID: QX1024-1

Sample wt/vol: 1025 (g/mL) ML

Lab File ID: QX1024-1A70

Level: (low/med) LOW

Date Received: 02/20/01

% Moisture: _____ decanted: (Y/N) _____

Date Extracted: 02/22/01

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 02/26/01

Injection Volume: 1.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Q

87-86-5-----Pentachlorophenol	0.3	J
-------------------------------	-----	---

J

FORM I SV

8270C

1D
GC EXTRACTABLE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM

Contract:

Lab Code: LIBRTY

Case No.:

SAS No.:

SDG No.: QX1024

Matrix: (soil/water) WATER

Lab Sample ID: QX1024-1

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: _____

% Moisture: _____ decanted: (Y/N) _____

Date Received: 02/20/01

Extraction: (SepF/Cont/Sonc) SEPF

Date Extracted: 02/22/01

Concentrated Extract Volume: 5000 (uL)

Date Analyzed: 02/22/01

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
---------	----------	--	---

12674-11-2-----	Aroclor-1016	0.50	U
11104-28-2-----	Aroclor-1221	1.0	U
11141-16-5-----	Aroclor-1232	0.50	U
53469-21-9-----	Aroclor-1242	0.50	U
12672-29-6-----	Aroclor-1248	0.50	U
11097-69-1-----	Aroclor-1254	0.50	U
11096-82-5-----	Aroclor-1260	0.50	U

Handwritten: 3/27/01

**March 5, 2001 Compliance Sample
Laboratory Results**

PH IN WATER ANALYSIS

SUMMARY REPORT

ITEM NO.	SAMPLE IDENTIFIER	COMPUCHEM NUMBER	RESULT (Standard pH units)	REPORTING LIMIT (Standard pH units)
1.	EFFLUENT	QZ1024-1	8.24	N/A

BRL = BELOW REPORTING LIMIT

Reviewed by/ID#: R. Devel 12405 Date: 3/7/01

14001

TOTAL SUSPENDED SOLIDS ANALYSIS

SUMMARY REPORT

ITEM NO.	SAMPLE IDENTIFIER	COMPUCHEM NUMBER	RESULT (mg/L)	REPORTING LIMIT (mg/L)
1.	EFFLUENT	QZ1024-1	BRL	4

BRL = BELOW REPORTING LIMIT

Reviewed by/ID#: R. W. Deery 12405 Date: 3/7/01

12405

6188A

CHEMICAL & ENVIRONMENTAL TECHNOLOGY, INC.

ENVIRONMENTAL ANALYTICAL SERVICES

FINAL REPORT OF ANALYSES

TEST AMERICA
4004 BARRETT DRIVE
SUITE 105
RALEIGH, NC 27609-
Attn: CAROL YANDELL

REPORT DATE: 03/13/01

SAMPLE NUMBER- 182008 SAMPLE ID- TEST AMERICA EFFLUENT
DATE SAMPLED- 03/05/01
DATE RECEIVED- 03/06/01 SAMPLER- NOT SPECIFIED
TIME RECEIVED- 1310 DELIVERED BY- J.A.

SAMPLE MATRIX- WW
TIME SAMPLED- 1400
RECEIVED BY- SMC

Page 1 of 1

PROJECT NAME : ACS-89

ANALYSIS	METHOD	ANALYSIS DATE	BY	RESULT UNITS	PQL
BIOCHEMICAL OXYGEN DEMAND	EPA 405.1	03/07/01	LEB	<2 mg/L	2

PQL = Practical Quantitation Limit

Results followed by the letter J are estimated concentrations.

NC DENR CERTIFICATIONS: DWQ - 96; PUBLIC WATER SUPPLY - 37724

LABORATORY DIRECTOR

A. L. H.

24501

SW846 METALS

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEMContract: ACS 89Lab Code: LIBRTY

Case No.: _____

SAS No.: _____

SDG No.: QZ1024Matrix (soil/water): WATERLab Sample ID: QZ1024-1Level (low/med): LOWDate Received: 03/06/01% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight):

UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	71.1	B		P
7440-36-0	Antimony	2.5	U		P
7440-38-2	Arsenic	4.2	U		P
7440-39-3	Barium	37.4			P
7440-41-7	Beryllium	0.19	B		P
7440-43-9	Cadmium	0.60	U		P
7440-70-2	Calcium	90100			P
7440-47-3	Chromium	0.71	B		P
7440-48-4	Cobalt	0.70	U		P
7440-50-8	Copper	0.98	B		P
7439-89-6	Iron	22.0	B		P
7439-92-1	Lead	1.7	U		P
7439-95-4	Magnesium	22400			P
7439-96-5	Manganese	95.5			P
7439-97-6	Mercury	0.64	U		CV
7440-02-0	Nickel	4.5	B		P
7440-09-7	Potassium	8840			P
7782-49-2	Selenium	4.8	U		P
7440-22-4	Silver	0.50	U		P
7440-23-5	Sodium	45500			P
7440-28-0	Thallium	6.2	U		P
7440-62-2	Vanadium	0.70	U		P
7440-66-6	Zinc	1.1	U		P

Color Before: COLORLESSClarity Before: CLEAR

Texture: _____

Color After: COLORLESSClarity After: CLEAR

Artifacts: _____

Comments: _____

6188B

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM

Contract:

Lab Code: LIBRTY

Case No.:

SAS No.:

SDG No.: QZ1024

Matrix: (soil/water) WATER

Lab Sample ID: QZ1024-1

Sample wt/vol: 25 (g/ml) ML

Lab File ID: QZ1024-1B71

Level: (low/med) LOW

Date Received: 03/06/01

% Moisture: not dec. _____

Date Analyzed: 03/19/01

GC Column: J&B DB-624 ID: 0.32 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L Q

74-87-3	-----Chloromethane	0.5	UW
75-01-4	-----Vinyl Chloride	0.5	U
74-83-9	-----Bromomethane	0.5	U
75-00-3	-----Chloroethane	0.5	U
75-35-4	-----1,1-Dichloroethene	0.5	U
75-15-0	-----Carbon disulfide	0.5	U
67-64-1	-----Acetone	6	BW
75-09-2	-----Methylene Chloride	0.7	U
156-60-5	-----trans-1,2-Dichloroethene	0.5	U
75-34-3	-----1,1-Dichloroethane	0.5	U
156-59-2	-----cis-1,2-Dichloroethene	0.5	U
78-93-3	-----2-butanone	3	UR
67-66-3	-----Chloroform	0.5	U
71-55-6	-----1,1,1-Trichloroethane	0.5	U
56-23-5	-----Carbon Tetrachloride	0.5	U
71-43-2	-----Benzene	0.5	U
107-06-2	-----1,2-Dichloroethane	0.5	U
79-01-6	-----Trichloroethene	0.5	U
78-87-5	-----1,2-Dichloropropane	0.5	U
75-27-4	-----Bromodichloromethane	0.5	U
10061-01-5	-----cis-1,3-Dichloropropene	0.5	U
108-10-1	-----4-Methyl-2-pentanone	3	UR
108-88-3	-----Toluene	0.5	U
10061-02-6	-----trans-1,3-Dichloropropene	0.5	U
79-00-5	-----1,1,2-Trichloroethane	0.5	U
127-18-4	-----Tetrachloroethene	0.5	U
591-78-6	-----2-hexanone	3	UR
124-48-1	-----Dibromochloromethane	0.5	U
108-90-7	-----Chlorobenzene	0.5	U
100-41-4	-----Ethylbenzene	0.5	U
108-38-3	-----m,p-Xylene	1	U
95-47-6	-----o-Xylene	0.5	U
100-42-5	-----Styrene	0.5	U

FORM I VOA

4501

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM

Contract:

Lab Code: LIBRTY

Case No.:

SAS No.:

SDG No.: QZ1024

Matrix: (soil/water) WATER

Lab Sample ID: QZ1024-1

Sample wt/vol: 25 g/ml) ML

Lab File ID: QZ1024-1B71

Level: (low/med) LOW

Date Received: 03/06/01

% Moisture: not dec. _____

Date Analyzed: 03/19/01

GC Column: J&B DB-624 ID: 0.32 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		(ug/L or ug/Kg) UG/L	Q
75-25-2-----	Bromoform	0.5	U
79-34-5-----	1,1,2,2-Tetrachloroethane	0.5	U
106-46-7-----	1,4-Dichlorobenzene	0.5	U
540-59-0-----	1,2-Dichloroethene (total)	0.5	U
1330-20-7-----	Xylene (total)	0.5	U

FORM 1 VOA

44021

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM

Contract:

Lab Code: LIBRTY

Case No.:

SAS No.:

SDG No.: QZ1024

Matrix: (soil/water) WATER

Lab Sample ID: QZ1024-1

Sample wt/vol: 1050 (g/mL) ML

Lab File ID: QZ1024-1B64

Level: (low/med) LOW

Date Received: 03/06/01

% Moisture: _____ decanted: (Y/N) _____

Date Extracted: 03/07/01

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 03/08/01

Injection Volume: 1.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Q

111-44-4-----Bis(2-chloroethyl) ether_____	9.1	U
106-44-5-----4-Methylphenol_____	9.5	U
78-59-1-----Isophorone_____	9.5	U
117-81-7-----bis(2-ethylhexyl)Phthalate_____	5.7	U

24501

FORM I SV

8270C

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM

Contract:

Lab Code: LIBRTY

Case No.:

SAS No.:

SDG No.: QZ1024

Matrix: (soil/water) WATER

Lab Sample ID: QZ1024-1

Sample wt/vol: 1050 (g/mL) ML

Lab File ID: QZ1024-1J2B70

Level: (low/med) LOW

Date Received: 03/06/01

% Moisture: _____ decanted: (Y/N) _____

Date Extracted: 03/07/01

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 03/07/01

Injection Volume: 1.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Q

87-86-5-----Pentachlorophenol	0.95	U
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~4501

FORM I SV

1D
GC EXTRACTABLE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM

Contract:

Lab Code: LIBRTY

Case No.:

SAS No.:

SDG No.: QZ1024

Matrix: (soil/water) WATER

Lab Sample ID: QZ1024-1

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: _____

% Moisture: _____ decanted: (Y/N) _____

Date Received: 03/06/01

Extraction: (SepF/Cont/Sonc) SEPF

Date Extracted: 03/08/01

Concentrated Extract Volume: 5000 (uL)

Date Analyzed: 03/09/01

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

Sulfur Cleanup: (Y/N) N

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Q

12674-11-2-----Aroclor-1016	0.50	U
11104-28-2-----Aroclor-1221	1.0	U
11141-16-5-----Aroclor-1232	0.50	U
53469-21-9-----Aroclor-1242	0.50	U
12672-29-6-----Aroclor-1248	0.50	U
11097-69-1-----Aroclor-1254	0.50	U
11096-82-5-----Aroclor-1260	0.50	U

24501

FORM I PEST